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EXAMINER

BARNES, CRYSTAL J

ART UNIT	PAPER NUMBER
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2121

13

DATE MAILED: 10/08/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/641,489

Applicant(s)

ARORA ET AL.

Examiner

Crystal J. Barnes

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**Period for Reply**  
-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 11 August 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-28 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,2,4-7,9,10,15-18,21 and 23-28 is/are rejected.
- 7) ☒ Claim(s) 3,8,11-14,19,20 and 22 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 17 August 2000 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_. 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Drawings*

1. The amendment to the specification, paper no. 11, to add the reference sign(s) in the description overcomes the objections to the drawings as failing to comply with 37 CFR 1.84(p)(5).

### *Response to Arguments*

2. Applicant's arguments filed 11 August 2003, paper no. 11, have been fully considered but they are not persuasive.

Applicant argues "a soft-state store to manage at least periodic refresh information ... soft-state variables" common to the three independent claims is not taught by neither of the references, whether considered separately or in combination.

In response to applicant's arguments that the references fail to show a limitation of applicant's invention, it was noted that Waldo et al. teaches "Java space" (see column 6 lines 9-13) which reads on the "soft-state store" of the present application. Therefore the examiner interprets "storing objects persistently" as taught by the Waldo et al. reference as the "soft-state store" in the present application. The "Java space" of the Waldo et al.

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reference "stores objects persistently". The "soft-state" of the present application "manages periodic refresh information".

Applicant argues, "[Java space and soft-state store] are entirely different in structure and function".

In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., structure of "soft-state store") are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

Thus, claims 1, 2, 4-6, 7, 9, 10, 15-18, 21 and 23-28 stand rejected.

3. Applicant should note that the rejection of this Office Action contains the same information as the previous Office Action, paper no. 10. However, the 35 USC 103(a) rejection has been changed from Humphries et al. in view of Waldo et al. to Waldo et al. in view of Humphries et al. The Examiner changed the 35 USC 103(a) rejection of paper no. 10 to make the record clear.

*Claim Rejections - 35 USC § 103*

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over USPN 6,185,611 B1 to Waldo et al. in view of USPN 5,621,662 to Humphries et al.

As per claim 1, the Waldo et al. reference discloses an architecture for an automation system, the automation system [distributed system] to control and monitor a plurality of devices [device 106 (see figure 1 and columns 4-5 lines 64-7)], the architecture comprising at least one look-up service [lookup service 212 (see figure 2 and column 5 lines 14-16, 48-54)] to maintain at least one database [central registry (see column 6 lines 38-39)] of the plurality of devices [nodes, services, devices] by a plurality of device attributes [segments, attributes (see column 6 lines 52-54, column 7 lines 2-6, 32-33)] including device type [type segment, service type (see column 7 lines 20-25, 37-39)] and physical location [board number, physical location

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(see column 7 lines 6-10)], and of a plurality of device objects corresponding to the plurality of devices [nodes, services, devices] by mapping a name for each device object to at least one address for each device object; a soft-state store [Java space 222 (see figure 2 and column 6 lines 9-13)] to manage at least periodic refresh information [store objects persistently (see column 6 lines 11-13)] for the plurality of devices [nodes, services, devices] and the plurality of device objects [software objects, objects], the refresh information managed by the soft-state store [Java space 222 (see figure 2 and column 6 lines 9-13)] as a plurality of soft-state variables [objects]; and a publication/subscription eventing component [notify method (see column 9 lines 60-61, 65-66)] to enable subscriptions [notifications (see column 10 lines 4-9)] to events [events] related to changes in the plurality of soft-state variables [objects] managed by the soft-state store [Java space 222 (see figure 2 and column 6 lines 9-13)]. Also see column 2 lines 27-29 and column 4 lines 40-60.

The Waldo et al. reference does not expressly disclose a plurality of device objects [software objects, objects] corresponding to the plurality of devices [nodes, services, devices] by mapping [one-to-one mapping] a name [subtype segment, common name] for each device object [software object,

object] to at least one address [node ID segment, address] for each device object [software object, object].

The Humphries et al. reference discloses

(see figure 3 and column 9 lines 15-16, "The home automation system is free form configuration.")

(see column 9 lines 34-41, "The host computer 20 transmits, at periodic intervals, a message to every node to determine whether or not that node is connected to the network.")

(see column 9 lines 41-45, "From the responses and based upon records the host computer 20 keeps in a directory as to which nodes should be connected to the network, the host computer 20 can detect if any node has been disconnected from the network.")

(see column 9 lines 62-66, "The domain segment indicates whether the node resides in the host computer 20 as a software object or resides on the network as a hardware object").

(see column 10 lines 36-38, "While the prior art home automation system did have some software objects that represented physical nodes, there was not a one-to-one mapping as in the invention.")

(see column 10 lines 42-45, "The node ID segment is used to identify each application node out on the system.")

(see column 10 lines 52-55, "The type segment logically groups similar nodes together and the node ID segment distinguishes different nodes having the same type segment.")

(see column 10 lines 56-57, "The subtype segment of the address identifies the hardware that is connected to the node.")

(see column 11 lines 2-6, "While the subtype segment would provide a description of the type of device, the board number is used to identify the physical location of the particular device .")

(see column 12 lines 9-12, "Once a message has been transmitted from a source node to a destination node, the destination node sends an acknowledgement message back to the source.")

At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to modify the exemplary distributed system taught by the Waldo et al. reference with the home automation system taught by Humphries et al.

One of ordinary skill in the art would have been motivated to implement a distributed home automation system with a dynamic lookup



service to provide a notification mechanism that can be used by subscribers/homeowners to receive notifications when the lookup service is updated (see Waldo et al. column 2 lines 57-62).

5. Claims 2 and 4 are rejected under 35 U.S.C. 103(a) as being unpatentable over USPN 6,185,611 B1 to Waldo et al. in view of USPN 5,621,662 to Humphries et al. as applied to claim 1 above, and further in view of logical reasoning.

As per claim 2, the Waldo et al. reference discloses the at least one look-up service [lookup service 212 (see figure 2 and column 5 lines 14-16, 48-54, column 6 lines 19-21)] comprises an attribute-based look-up service to maintain a first database of the plurality of devices by the plurality of device attributed and a name-based look-up service to maintain a second database of the plurality of device objects by the plurality of devices.

As per claim 4, the Waldo et al. reference discloses the second database maintained by the name-based look-up service [lookup service 212] further includes a plurality of computation [computational] objects; a service refers to a resource, data, or functionality that can be accessed by a user, program, device, or another service and that can be computational, storage

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related, communication related, or related to providing access to another user (see column 4 lines 40-50).

The Waldo et al. reference does not expressly disclose comprises an attribute-based look-up service to maintain a first database of the plurality of devices by the plurality of device attributed and a name-based look-up service to maintain a second database of the plurality of device objects by the plurality of devices.

However, it would have been logically to one of ordinary skill in the art to separate the look-up services into as many registries as required by any other distributed system.

At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to modify the look-up service taught by the Waldo et al. reference with many lookup services, discovery servers, and Java spaces (see Waldo et al. reference column 6 lines 19-21).

One of ordinary skill in the art would have been motivated to separate the look-up services into as many registries as required to facilitate maintenance of distributed registries.

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6. Claims 6, 7, 9, 10, 15-18, 21, 23 and 25-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over USPN 6,185,611 B1 to Waldo in view of USPN 5,621,662 to Humphries et al. as applied to claim 1 above.

As per claim 6, the Humphries et al. reference discloses the device [node] and the device object [software object] refresh information [status] included in the soft-state variables comprises periodic heartbeats [periodic intervals] sent by each entity of the plurality of devices [nodes] and the plurality of device objects [software objects] (see column 9 lines 34-41). Since each hardware device has a unique address, the host computer 20 can monitor the status of every hardware device (see column 11 lines 15-26). The use of the various segments in the address also allows the host computer 20 to check the status of the network and to determine the configuration of the network (see column 11 lines 37-39).

As per claims 7, the Waldo et al. reference discloses the periodic heartbeats [heartbeats] sent by each entity of the plurality of devices [nodes, services, devices] and the plurality of device objects [software objects, objects] refresh the entity, such that failure by the entity to send the periodic heartbeats as required by a refresh rate for the entity results in removal of the entity from the at least one look-up service (see column 4

lines 6-10). The lookup service provides an event mechanism that generates notifications as new services are registered, existing services are deleted, or attributes of a service are modified (see column 7 lines 11-16).

As per claim 9, the Humphries et al. reference discloses a plurality of system management daemons to detect failures in the plurality of devices and initiate recovery from the failures (see column 11 lines 40-48).

As per claims 10, the Waldo et al. reference discloses the plurality of system management daemons include a power line monitoring daemon to detect problems with the plurality of devices that are power line devices (see figure 1 and column 4 lines 64-67, column 5 lines 2-7).

As per claims 15, the Waldo et al. reference discloses a plurality of instances for each of at least one of the plurality of system management daemons, such that the plurality of instances exchange age information, and each instance uses the age information to determine whether it is a leader instance (see column 7 lines 32-43).

As per claim 16, the Waldo et al. reference discloses the at least one look-up service [look-up service 212], the soft-state store [Java space 222], and the publication/subscription eventing component [notify method] reside

within a system infrastructure layer of the architecture (see figure 2 and column 5 lines 8-19).

As per claim 17, the Waldo et al. reference discloses an application layer in which the plurality of device objects reside (see column 5 lines 20-28).

As per claim 18, the Waldo et al. reference discloses at least one automation application and a plurality of device daemons corresponding to the plurality of devices residing in the application layer (see column 5 lines 36-44).

As per claim 21, rejection of claims 1, 16 and 17 are incorporated and further claim 21 contains limitation recited in claims 1, 16 and 17; therefore claim 21 is rejected under the same rationale as claims 1, 16 and 17.

As per claim 23, rejection of claims 1, 2 and 9 are incorporated and further claim 23 contains limitation recited in claims 1, 2 and 9; therefore claim 23 is rejected under the same rationale as claims 1, 2 and 9.

As per claim 25, rejection of claim 6 is incorporated and further claim 25 contains limitation recited in claim 6; therefore claim 25 is rejected under the same rationale as claim 6.

As per claim 26, rejection of claim 7 is incorporated and further claim 26 contains limitation recited in claim 7; therefore claim 26 is rejected under the same rationale as claim 7.

As per claim 27, rejection of claim 10 is incorporated and further claim 27 contains limitation recited in claim 10; therefore claim 27 is rejected under the same rationale as claim 10.

As per claim 28, rejection of claim 15 is incorporated and further claim 28 contains limitation recited in claim 15; therefore claim 28 is rejected under the same rationale as claim 15.

At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to modify the exemplary distributed system taught by the Waldo et al. reference with the home automation system taught by Humphries et al.

One of ordinary skill in the art would have been motivated to implement a distributed home automation system with a dynamic lookup service to provide a notification mechanism that can be used by subscribers/homeowners to receive notifications when the lookup service is updated (see Waldo et al. column 2 lines 57-62).

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7. Claims 5 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over USPN 6,185,611 to Waldo et al. in view of USPN 5,621,662 to Humphries et al. as applied to claims 1, 2, 4, 6, 7, 9, 10, 15-18, 21, 23, and 25-28 above, and further in view of USPN 6,269,378 Quirt.

As per claims 5 and 24 wherein the at least one address for each device object comprises a synchronous address for synchronous communication with the device object and an asynchronous address for asynchronous communication with the device object, the Humphries et al. reference in view of the Waldo et al. reference do not disclose a synchronous address for synchronous communication with the device object and an asynchronous address for asynchronous communication with the device object.

The Quirt reference discloses

(see figure 1A and column 6 lines 18-21, "The Name Service 110 is integrated in an object oriented software system 100 comprising a plurality of software objects 102.")

(see column 6 lines 24-26, "The Name Service 110 allows a given software object to locate another software object in the system through the use of a persistent name.")

(See Abstract, "Lookup requests to the Name Service are made by objects as ordinary synchronous procedure calls. When the client attempts to send a message to the software object, it does so in an asynchronous fashion.")

At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to implement the synchronous interface in an asynchronous software system taught by Quirt in the distributed architecture taught by both Waldo et al. and Humphries et al.

One of ordinary skill in the art would have been motivated to further modify the distributed systems taught by both Waldo et al. and Humphries et al. to provide an improved method for locating a software object in an asynchronous distributed software system with the simplicity of synchronous interaction (see Quirt column 3 lines 53-57).

8. Claims 3, 8, 11-14, 19, 20 and 22 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.



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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Crystal J. Barnes whose telephone number is 703.306.5448. The examiner can normally be reached on Monday-Friday alternate Mondays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Anil Khatri can be reached on 703.305.0282. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703.305.3900.

cjb  
October 1, 2003

*Ramesh Patel*  
RAMESH PATEL  
PRIMARY EXAMINER  
*For Anil Khatri* 10/6/03